

**Coordinated State Agency Response Policy  
to Detections of Volatile Synthetic Organic  
Contaminants in Ground-Water  
and/or Drinking Water**

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## **I. Purpose of Document**

In recent years, state agencies have become increasingly involved in situations where volatile synthetic organic compound (VOC) contamination has been found in ground-water used for drinking water purposes. VOC contamination can cause public health and environmental problems due to the fact that many VOCs are flammable, explosive or suspected or known carcinogens and teratogens. Although individual agencies have worked together to respond to these incidents, these same agencies felt that a “coordinated response policy” was needed to maximize the State of Delaware’s effectiveness and efficiency when responding to future incidents. This response policy is designed to fulfill the need for VOCs as these contaminants have proven recalcitrant to remediate.

The purpose of this document is to:

- 1) identify relevant state agencies and contacts,
- 2) cite the legal authority serving as the mandates for each agency as it applies to VOC contamination in ground-water and/or drinking water,
- 3) identify the response actions available to each state agency,
- 4) define a communication network between state agencies, and
- 5) define the procedure for data and information sharing.

Implementation of this Response Policy will provide a mechanism for state agencies to respond to ground water contamination concerns as soon as the VOC contamination is noted as opposed to reacting once the groundwater contamination has become a threat to human health and welfare. Remediation of VOC contamination can, initially, place a large financial burden on the State of Delaware should the contamination become widespread.

## **II. Importance of Ground-Water Quality**

Ground-water is used extensively in Delaware for drinking water. Approximately 25% of New Castle County’s drinking water is generated from ground water sources. Kent and Sussex County rely solely on ground water either through private or public wells. Accordingly, it is important that the State be prepared to respond appropriately and effectively should a VOC be found in drinking water at *any* concentration. In many instances, notification of a VOC at a concentration that is at or above human health criterion could have been addressed more cost effectively when the concentration of the VOC was below the human health criteria and the extent may be nominal or localized.

While the water quality of Public Water Systems is regulated by State and Federal law (Safe Drinking Water Act (SDWA)) and the Delaware Regulations Governing Public



Drinking Water Systems, the water quality of privately-owned wells is not. It should be noted that although private drinking water wells are not regulated under the SDWA, each County Health Unit provides drinking water testing to these well owners for total coliform bacteria and routine chemicals such as nitrate, nitrite, fluoride, chloride, sulfate, iron, alkalinity, sodium and hardness. Usually, the private well owner reports any abnormality (taste, odor, color) with the water from private wells.

### **III. Existing Legal Authority**

Two (2) state agencies (Delaware Department of Natural Resources and Environmental Control (DNREC) and Delaware Health and Social Services (DHSS)) have statute(s) and accompanying Regulations that apply to VOCs in ground-water and/or drinking water. In some cases, there is overlap in authority, and more than one statute may apply. This section summarizes the relevant legal authority of individual state agencies, and a brief summary of their responsibilities with regard to VOC contamination in ground water and/or drinking water.

#### **A. Department of Natural Resources and Environmental Control**

DNREC has legal authority for protecting the State's ground and surface water, and enforcing water quality standards. DNREC has two Divisions with their own ground-water protection focus and regulations.

DNREC's Division of Air and Waste Management (DAWM) has legal authority for enforcing ground water and drinking water standards under several statutes. The Division of Air and Waste Management includes the Site Investigation and Restoration Branch (SIRB), Tank Management Branch (TMB), Solid and Hazardous Waste Management Branch (SHWMB) and, Emergency Prevention and Response Branch (EPRB).

DAWM has legal authority in instances where a point source (i.e. abandoned dump, manufacturing facility, industrial site, leaking underground storage tank, etc.) has caused ground/drinking water contamination. This Division also regulates active industrial and commercial facilities, and is responsible for responding to chemical spills which may impact surface water and ground water.

DNREC's Division of Water Resources (DWR) – has legal authority from 7 Del.C., Chapter 60, and has broad legal authority to protect ground and surface water from contamination. Of particular interest is the Division's well permitting section, responsible for issuing water well permits for groundwater extraction. Water well permits are flagged for contaminant review when the proposed location is proximal to a point source contaminant site.

DWR – Water Supply Section is responsible for completing and updating public water system source water assessments which provide local and State governments and the public information about protecting public drinking water resources through wellhead

protection. The assessments are updated to reflect contamination detected by Division of Public Health at any concentration.

DAWM and DWR coordinate groundwater protection efforts through the creation of Groundwater Management Zones (GMZ). Written Memoranda of Agreement define and describe the area where a technical impracticability exists for remediation of groundwater. The defined areas have distinct limitations and restrictions on drilling any new potable water supply well.

#### **B. Delaware Health and Social Services – Division of Public Health**

The Division of Public Health's (DPH) Office of Drinking Water (ODW) is responsible for ensuring the drinking water supplied by Public Water Systems (PWS) meets federal and state drinking-water quality standards. DPH has legal authority under 16 Del.C. to enforce drinking-water quality standards for PWS. DPH has additional legal authority under 29 Del.C. to protect public health and the general welfare when requested by a private well owner.

The State currently does not regulate the water quality of private drinking water wells. Therefore, State agencies are generally limited to offering recommendations and advice to a private well owner with a water quality problem.

#### **IV. Criteria for Notification of DNREC by DPH-ODW for VOCs found in Ground/Drinking Water**

This section describes VOC contaminants regulated by DPH-ODW (Table 1) and the threshold conditions for notification of DNREC by ODW.

- 1) If through routine water testing, DPH-ODW encounters a VOC ground/drinking water contaminant that exceeds half the maximum contaminant level (MCL) ODW will notify DNREC through DNREC-DAWM.
- 2) Should DPH-ODW record a VOC above the practical quantitation limit (PQL) for VOC in two successive sampling events (independent of sampling schedule), DPH-ODW will notify DNREC-DAWM.



**Table 1- Drinking Water Standards for Volatile Synthetic Organic Chemicals (VOCs) as defined by ODW Regulations**

Compound	MCL (mg/L)	Half of MCL (mg/L)	Also Known As
Benzene	0.005	0.0025	Benzol 90, Coal Naptha, Phene, Pyrobenzol
Carbon Tetrachloride	0.005	0.0025	Benioform, Carbon tet, Perchloromethane
1,2-Dichlorobenzene	0.6	0.3	Chloroden, DCB, Dilantin DB, Dowtherm E
1,4-Dichlorobenzene	0.075	0.0375	Para Crystals, Paradichlorobenzene, PDB
1,2-Dichloroethane	0.005	0.0025	Brocide, Dutch oil, Ethylene dichloride,
1,1 Dichloroethylene	0.007	0.0035	1,1-DCE, VDC, Vinylidene chloride
Cis-1,2-Dichloroethylene	0.07	0.035	1,2 DCE, Acetylene Dichloride
Trans 1,2 Dichloroethylene	0.1	0.05	1,2 Dichloroethene, Trans Acetylene Dichloride
Dichloromethane	0.005	0.0025	DCM, Methylene Chloride
1,2 Dichloropropane	0.005	0.0025	Propylene chloride, Propylene dichloride
Ethylbenzene	0.7	0.35	EB, Ethylbenzol, Phenylethane
Methyl tert Butyl Ether	0.01	0.005	MTBE
Monochlorobenzene	0.1	0.05	Benzene Chloride, Chloro Benzol, Phenyl Chloride
Styrene	0.1	0.05	Ethyenyl benzene
Tetrachloroethylene	0.005	0.0025	Tetrachloroethene, PCE, PERC
Toluene	1	0.5	Methylbenzene, Metacide, Phenylmethane, Toluol
1,2,4-Trichlorobenzene	0.07	0.035	1,2,4 TCB
1,1,1-Trichloroethane	0.2	0.1	Chloroethene, Methyl Chloroform
1,1,2-Trichloroethane	0.005	0.0025	Ethane trichloride, Vinyl trichloride
Trichloroethylene	0.005	0.0025	Trichloroethene, TCE
Vinyl Chloride	0.002	0.001	Chlroethene, Monochlorethene, MVC
Xylenes (total)	10	5.0	Dimethyl benzene, Xylol, Methyl Toluene

These criteria are based upon previous below MCL occurrences of VOC detections recorded in public water system that have been the precursor to pervasive groundwater contamination that has triggered costly multi-agency groundwater investigations. These instances have led to the creation of Sites that eventually fall under the jurisdiction of DNREC –DAWM branches.

## **V. Notification Procedures When VOC Contaminants are Found in Ground/Drinking Water**

This Section describes the procedures to follow when a VOC is detected in ground and/or drinking water, or when a contaminant has the potential to contaminate ground and/or drinking water.

### **A. Wells Used for Public Water Supply**

The drinking water quality of Public Water Systems (PWS) is regulated by the DPH-ODW. The DPH-ODW is required to take predetermined action(s) if a regulated VOC is in violation of a drinking water standard. The actions required are outlined in law and/or regulation. In addition to the actions required by statute the ODW will notify DNREC.

Depending on the circumstances, DNREC may also begin an investigation of the potential source of the VOC contaminant. For example, if an old dump or waste site is suspected as a potential source of the contaminant(s), DNREC's SIRB may undertake a ground-water investigation. Whereas DPH is responsible for ensuring the PWS is in compliance with drinking water standards, DNREC is responsible for ensuring that environmental standards (i.e. ground water) are met. DNREC may require ground-water remediation or "cleanup" if a point source for the contaminant is located.

### **B. Wells Not Used for Public Water Supply:**

The water quality of private domestic wells, agricultural wells, irrigation wells, etc. is not regulated by the Office of Drinking Water. Therefore, the drinking water standards and requirements established for VOCs in PWS do not necessarily apply to private domestic wells. Should sampling in a private domestic well indicate contamination that meet the previously described criteria of half MCL or any 2 consecutive above PQL notification may come from ODW to DNREC to review the data for potential further investigation.

## **VI. Response by DNREC-DAWM and DWR to notification by ODW**

DNREC-DAWM, once notified, will review the data supplied by ODW and determine whether to further investigate the identified contamination. DNREC-DAWM will place the data in database and track locations of the data via a digital mapping system. DNREC-DWR will utilize the data to update the next iteration of source water assessments for PWS or to monitor the area through the well permitting application.

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**State Agency Contact List**

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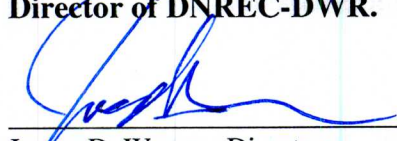
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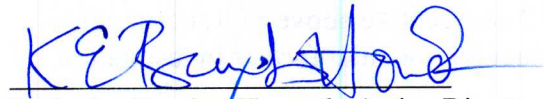
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**This Coordinated State Agency Response Policy may be modified or terminated only upon the agreement of all parties. Any modifications must be made in writing and signed by the Director of DHSS-DPH, Director of DNREC-DAWM and the Director of DNREC-DWR.**



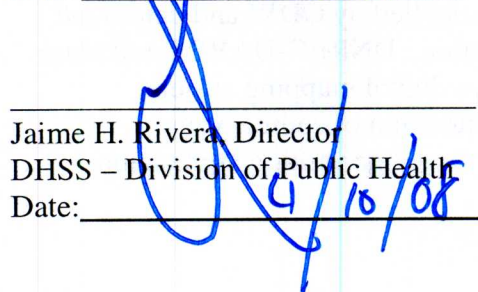
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